

ABSTRACT

In a containing-fullerene production method for giving acceleration energies to containment target atom ions by using an acceleration electrode to thereby implant the containment target atoms into an empty fullerene film previously formed on a deposition-assistance substrate, charged particles constituting an ion beam are only containment target atom ions having the same polarity, so that repulsive forces act between the charged particles, and the ion beam is diverged particularly in case of ion implantation with a low energy, thereby problematically making it difficult to implant ions at a high density into the fullerene film, and decreasing a yield of containing-fullerene. Thus, it is devised to transport plasma including charged particles made of containment target atom ions and charged particles of a polarity opposite to that of the containment target atom ions, up to an empty fullerene film on a deposition-assistance substrate by a uniform magnetic field generated by magnetic field generating means, and to give acceleration energies to the containment target atoms by a bias voltage applied to the deposition-assistance substrate, thereby implanting the containment target atoms into the fullerene film. Since attractive forces act between the charged particles constituting the plasma so that the plasma is not diverged, it becomes possible to achieve a high density ion implantation to improve a yield of containing-fullerene

even in ion implantation with a low energy.